



# The ISC Newsletter

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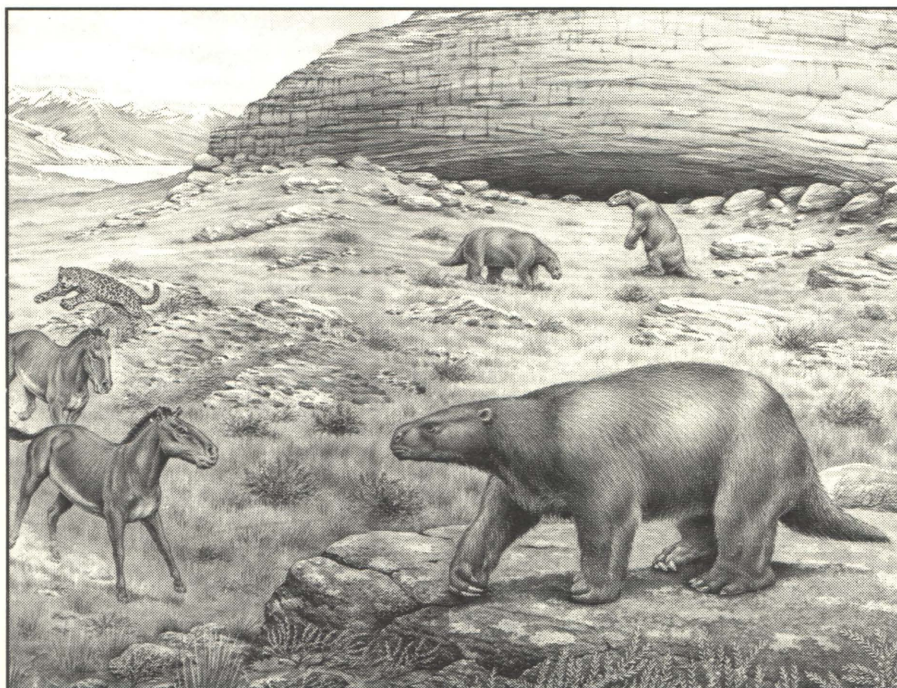
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## GROUND SLOTH SURVIVAL PROPOSED ANEW



*Artist's depiction of late Pleistocene ground sloths of the genus Mylodon outside of Eberhardt Cave, at the southern tip of South America. The finding of a fresh-looking mylodontid skin in the cave in the 1890's led to belief in the modern survival of this Ice Age form. Although the skin later proved to be thousands of years old, recent eyewitness reports of ground sloth-like animals give hope that some of these may still survive. (Peter Snowball/The Natural History Museum, London.)*

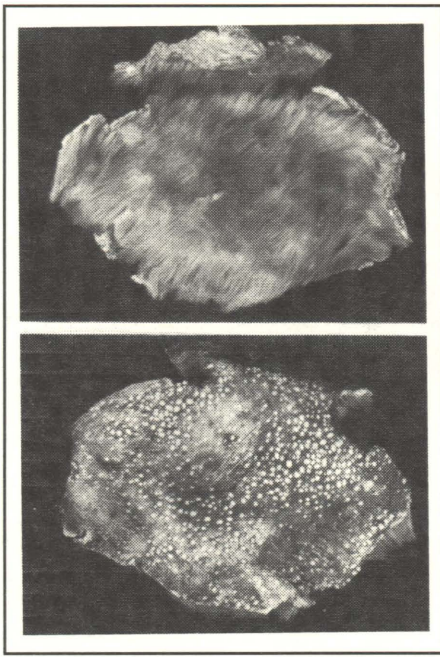
One of the most spectacular groups of New World mammals thought to have become extinct at the end of the Pleistocene (Ice Age) Period, about 10,000 years ago, are the ground sloths. Together with modern arboreal sloths, armadillos, and anteaters, ground sloths belong in the Order Xenarthra (=Edentata). However, they were quite different from today's much smaller tree sloths of Central and South America. Ground sloths were generally very large, with individuals in one genera, *Megatherium*, attaining a tip-to-tail length of 20 feet (6m), and weighting over three tons. When upright, they probably stood over 15 feet (4.5m) tall.

Evolving in the Oligocene, about 35 million years ago, ground sloths di-

versified into many different species. There are currently three recognized families represented in the Pleistocene: Megatheriidae, with four genera; Mylodontidae, also with four genera; and Megalonychidae, with 11 genera (the two present-day species of two-toed tree sloths in the genus *Choloepus* are also placed in the latter family). Although there was considerable variation, almost all ground sloths were relatively slow-moving, terrestrial browsers, walking on the outer sides of in-turned, heavily-clawed feet.

Interest in the possible modern survival of ground sloths in South America was widespread a century ago. Since then, despite many rumors, there has been no discernable pattern of ground





A piece of the ground sloth skin from Eberhardt Cave. The upper photo shows the outer layer, with long, reddish hair still preserved. The lower photo shows the interior part of the skin, studded with bony ossicles which served as protective armor. (The Natural History Museum, London.)

sloth-like eyewitness reports. Recently, however, an American zoologist named David Oren has proposed the present survival of this Pleistocene form in the Amazon Basin. Oren, who lives in Brazil, has collected numerous eyewitness reports of a supposed animal named the *mapinguari*. The descriptions in the reports, he proposes, correlate well with a medium-sized ground sloth.

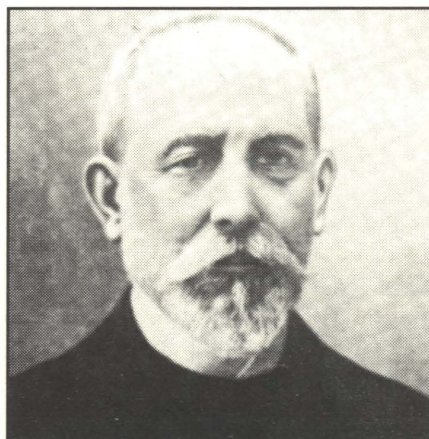
The first ground sloth survival proposal was made in 1898 by Florentino Ameghino, the great Argentine paleontologist, after he examined a piece of fresh-looking, hair-covered skin which looked very much like the skin of a mylodontid ground sloth. The skin was studded with bony ossicles. Interestingly, such ossified nodules, which are thought to have served as protective armor, were present only on the interior side of the skin, and would not have been visible on the outer surface of the animal.

Previous to this, Ameghino had been puzzled by a report from his friend Ramon Lista, a geographer and government minister, who had described his sighting of

an unidentified animal some years before. While on an expedition to Santa Cruz province, in southern Patagonia, Lista and his companions had seen what they later described as a large pangolin-like quadruped, but covered with hair instead of scales. (Pangolins are Old World, and have never occurred in the Americas.) Although they shot at it, the animal, seemingly unaffected, escaped into the brush.

Lista's report was peculiar at the time, but it was not too dissimilar from accounts of a nocturnal quadruped given by the Tehuelche Indians of Patagonia. Bernard Heuvelmans, now ISC President, discussed the story of possible surviving Patagonian ground sloths in his classic 1955/1958 work *On the Track of Unknown Animals*, stating that the native accounts included descriptions of "enormous hooked claws...[and] all agree that it cannot be harmed by arrows or bullets."

Ameghino himself wrote: "In spite of the authority of Lista, who, besides being a learned traveler was also a skilled observer, I have always considered that he was mistaken, the victim of an illusion." However, the finding of what appeared to be a fresh ground sloth skin, still covered with red hair, changed Ameghino's mind, and he proceeded to publish a new species description, naming it *Neomylodon listai*, after Lista — who unfortunately had just been killed by the Tobas Indians while exploring the Pilcomayo region. Ameghino's opinion that a species of ground sloth still lived



Florentino Ameghino

in South America caused a worldwide sensation — and expectations which were not to be met.

The skin, and two similar specimens in the possession of other scientists, turned out to be parts of a larger piece which had come from a cave near a fjord called Bahia de Ultima Esperanza (Last Hope Bay) in Tierra del Fuego. It had been found in the cave — which is actually on the Chilean side of the Argentina-Chile border — when it was explored in 1896 by Herman Eberhardt, a German who owned a nearby ranch.

The two other scientists who had obtained parts of the Eberhardt skin were Otto Nordenskiöld, a Swedish polar explorer, and Francisco Moreno, of the La Plata Museum near Buenos Aires. Nordenskiöld, apparently unaware of the Tehuelche Indian accounts, concluded that such an Ice Age animal could not have survived to the present and "have eluded the sharp eyes of the native Indians." Moreno, presenting his findings to British scientists at the Zoological Society of London, concluded that the skin was not recent, and had probably been preserved in a fresh-like condition in the cave, an opinion supported by his own study of a well-preserved mummified body of a paleo-Indian in another cave.

While most British scientists did not agree with this opinion at the time, that is the present generally accepted conclusion, and part of Eberhardt's ground sloth skin may be seen today so identified in a display at the Natural History Museum in London.

Eberhardt Cave, as the site is now known, has been studied extensively for its faunistic fossil material. Besides remains from 11 other mammal families, the cave has produced remains from at least three individual ground sloths.

Most paleomammalogists now assign the Eberhardt Cave ground sloths to the previously-known species *Mylodon darwini*, rendering Ameghino's *Neomylodon listai* a synonym. Others, while dispensing with Ameghino's generic name of *Neomylodon*, continue to recognize the species he named — as *Mylodon listai*.



Although mylodontids are usually referred to as “medium-sized” ground sloths — which they were when compared to the 3-ton megatheres — they were actually quite large and powerfully built, weighing possibly as much as 2,200 lbs (1,000kg), and having a quadrupedal height of 4 feet, 4 inches (1.3m) at the shoulder.

So, what of possible still-living ground sloths? Carbon-14 dating of the Eberhardt Cave material — as well as mylodontid remains from other Patagonian caves and ground sloth remains from other South American sites — has since established that, despite its sometimes fresh-looking appearance, it is between 8,600 and 13,000 years old, essentially going back to the time of the great faunal extinctions. One exception is ground sloth bone from northern Chile dated at 4,400 years old, but because the material was found exposed on the ground — not in a cave — the dating is considered unreliable and unpersuasive.

In the late 1970's, new evidence was produced indicating ground sloth survival in Eberhardt Cave itself to as recently as 5,000 years ago. This new evidence, although dramatic and startling, is based on stratigraphy only — not radiocarbon dating — and it is not accepted as conclusive by all paleobiologists.

Carbon-14 dating of ground sloth remains from other areas, including the United States, have, again, given ages of around 10,000 years — except in the Caribbean. Interestingly, it is now generally accepted that some smaller-sized ground sloth species within the Family Megalonychidae (which includes the modern two-toed tree sloth genus *Choloepus*) did indeed persist on some Caribbean islands up to several hundred years ago — possibly up to the time of Columbus, and maybe even beyond that.

The evidence consists of osteology found in association with Indian pottery and human and pig bones. One species, *Parocnus serus*, whose remains were found in a cave in Haiti, is thought to have weighed up to 152 lbs (70kg). *Synocnus comes*, another Haitian species, had an estimated weight of about 50 lbs

(23kg). And a third species, *Acratocnus odontrignonus*, from Puerto Rico, probably weighed up to 100 lbs (45kg). *S. comes* and *A. odontrignonus* may have been partly arboreal.

While ground sloth survival on these islands may have occurred thousands of years beyond their survival on the American mainland, island species are always the most susceptible to extirpation by both humans and alien animals introduced by humans. Tragically, all such Caribbean species are now almost certainly gone forever.

This, of course, does not refute the possibility of present ground sloth survival in other parts of the Americas, particularly in South America. Even though radiocarbon dating of the Eberhardt Cave material indicates an age of thousands of years, and even though it was the misinterpreted skin from that cave that led Ameghino to change his mind and accept the sighting report by his friend Lista, the possibility of such survival still remains. Indeed, it is eyewitness accounts — the lifeblood of cryptozoology — that, in the end, leaves open this possibility.

Ameghino's own brother, Carlos, who had led a two-year geological/paleontological field survey of Patagonia in the 1890's, wrote of seeing a fresh skin belonging to a Tehuelche Indian that was very similar to the one from Eberhardt Cave. He also related a report by another Indian of an *iemisch*, a mythical animal thought by some to be a ground sloth; the witness had described encountering the animal on a road, and shooting it dead. Carlos also accepted stories of the *iemisch* being semi-aquatic, as did the German anthropologist Robert Lehmann-Nitsche, who, after an intense study of local folklore and Indian dictionaries, concluded that the *iemisch* was merely a cultural composite of the jaguar and otter.

Putting the *iemisch* aside, however, Heuvelmans himself concluded that “there is little doubt that the Tehuelche and Araucan traditions include a memory of a large and frightening hairy beast. From what we know of the present and the sub-fossil fauna of this area it can

only be some kind of large ground-sloth.”

Heuvelmans related how Ameghino himself, in studying Argentine colonial literature, had found references to a large animal called the *su* or *succarath*, which, like the edentates of today, carried its young on its back. The animal was apparently hunted, and its skins used as cloaks. Another account related how the Indians dug pits to trap the *su*, and then kill them with arrows. All of this pointed at the real possibility of surviving ground sloths, an idea even supported by Sir Edwin Ray Lankester, a leading British zoologist and director of the British Museum (Natural History), who later went on to prepare the first comprehensive monograph of the just-discovered okapi, a giraffid with affinities to fossil forms.

Organized searches for living ground sloths at the time, however, were unsuccessful. The main one was led by Hesketh H. Pritchard, who, becoming impatient with the lack of results, returned to England claiming that the whole thing was a fabrication. Half a century later, Carlos Rusconi, at the National History Museum of Mendoza, also concluded that ground sloths must be extinct. Interestingly, however, he admitted in his 1949 paper that reports of large, unknown mammals were still being made to his museum by local people.

Since then — as far as is known by the ISC Secretariat — no modern reports have come out of southern South America suggesting possible ground-sloth survival. However, Heuvelmans himself made a prediction in the 1950's that may have important implications. In *On the Track*, he discussed what has since become known as the Blitzkrieg model of American megafaunal extinctions about 10,000 years ago — that is, the supposed rapid killing-off of the larger Pleistocene animals by newly arrived paleo-Indian hunters from Asia.

He proposed, quite reasonably, that remnants of surviving populations would have retreated to the tropical forests, stating that “...it is unlikely that the really gigantic species could have adapted to the inextricable virgin forests...On the other hand, it is not too difficult to see

how the medium-sized ground sloths might have survived in woodland savanna or sparse forest, or even on the fringes of or in clearings in the densest of jungles...what has happened to them in their impenetrable retreat in the vast Amazonian *selva* and the *boscosa* of the Andes?...It is hard to see what, in the peace of these forests rarely inhabited by man, could have led to their extinction...Might they not still live in this 'green hell' and find it a haven of peace?"

Heuvelmans' prediction, that the best place to look for surviving ground sloths is not the open and cold Patagonian landscape of southern South America, but the equatorial tropical forests of the Amazon Basin and its surrounding regions, may turn out to be prophetically correct.

In the 1980's, J. Richard Greenwell, ISC Secretary, learnt of the sighting in Ecuador of a strange, long-haired animal whose form sounded very much like a medium-sized ground sloth. With a reported length of about 10 feet (3m), the animal was described as a quadruped that could also stand bipedally. It was seen to leave a cave, and to browse on nearby vegetation. The witness, not sophisticated in matters zoological or paleontological, also described its head as having a long, horse-like "nose" — a very ground sloth-like feature.

Although impressed by the report and the circumstances surrounding it, Greenwell, who once spent 6 years in South America, has been unable to secure funding for an expedition to the site. He has also been concerned that no other, similar reports had come out of northern South America, leaving this one enigmatic case without context. Excluding hoaxes, cryptozoological reports generally fall into an identifiable pattern — regardless of whether the pattern has a biological or social origin — but no pattern or context had seemed apparent in this instance. David Oren may now have provided such context.

An American working at Brazil's Emilio Goeldi Museum, in Belem, Oren has published a paper in the Museum's zoological monograph series linking re-

ports of the folkloric Amazonian *mapinguari* to ground sloths, proposing — just as Heuvelmans had predicted 40 years before — that such a fossil form continues to survive today in the Amazon Basin (David C. Oren, 1993, Did Ground Sloths Survive to Recent Times in the Amazon Region?, *Goeldiana Zoologia*, No. 19, August).

In this important cryptozoological paper, Dr. Oren describes the *mapinguari* as having long and reddish hair, extraordinary strength, a very tough skin, a loud call, feet turned backwards, and nocturnal habits.

Having worked in Brazil since 1977, he had always considered the *mapinguari* to be as mythical as the many other talked-about fabulous creatures of the Amazon forests. His interest in a possible zoological basis for this particular entity was sparked by David Gueiros Vieira, a historian at the University of Brazilia, who had collected first-hand reports from gold-miners of encounters with it, and, furthermore, that it seemed to be far more like a ground sloth than a primate, as had been previously thought.

Subsequently, Oren states, he "traveled to regions where this creature has been reported, interviewed people who have claimed to have seen it or evidence of its activity (feces, tracks and damage to food plants), and have come to the conclusion that the *mapinguari* is a member of the giant ground sloth group, that it has very recently gone extinct in the majority of the Amazon region, and may still survive in small numbers at least in westernmost Brazilian Amazonia..." Further, he concludes that the *mapinguari* fits "precisely what is expected of a small, forest-dwelling mylodontid ground sloth."

He then reviews a number of different ground sloth features which seem to be represented in *mapinguari* reports, the most important of which are as follows:

**Size.** Forest dwelling forms tend to be smaller than their grasslands relatives. Thus, any surviving forest species of ground sloth would probably be smaller than fossil species, which inhabited more

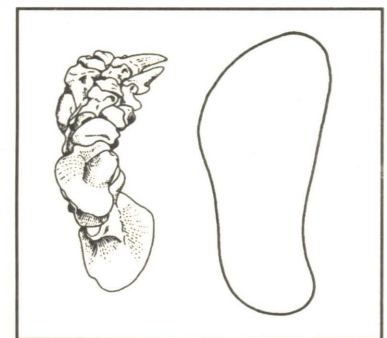
open terrain (and perhaps not much larger than the Caribbean ground sloths — island forms also being smaller). Reports of the *mapinguari* indicate a length of about 6 ft (1.8m).

**Hair.** Surviving ground sloth hair from mummified cave remains of different species is red. Eyewitnesses describe the *mapinguari* as red-haired.

**Armor.** Mylodontid ground sloths had dermal ossicles for protection on their shoulders, backs, and thighs, and closely-spaced ribs that provided chest protection. Accounts of the *mapinguari* state it is only vulnerable around its navel — or its face — and that arrows or shotgun blasts elsewhere on its body do not kill it.

**Feet.** Sloths walked "with their claws curved towards the center of the body." The feet of the *mapinguari* are reported by witnesses to be "turned backwards."

**Tracks.** Although there is some uncertainty concerning how ground sloths walked on their clawed feet, fossil tracks look oblong and human-like. Reports of *mapinguari* tracks describe them as either "like people's, but backwards," or roundish.



Outline of a Nevada fossil track of the ground sloth *Glossotherium harlani* next to typical ground sloth foot skeleton. (Margaret Lambert Newman and Hubert Pepper.)

**Feces.** Some ground sloth feces look very much like horse feces. Reports state that *mapinguari* feces are very similar to horse feces.



Vocalizations. Well developed fossil hyoid bones of ground sloths indicate they could vocalize loudly, and modern tree sloths also vocalize, with individuals of the two-toed genus *Choloepus* (of the Pleistocene family Megalonychidae) producing a high-pitched scream. The *mapinguari* is said to vocalize by a low call "like thunder," and by a long-distance, higher-pitched call "like a human shouting." The latter is said to very much frighten villagers, even hunters.

After concluding "that surviving ground sloth species would have been forest-adapted is not entirely unreasonable," Oren gives five reasons why they have not previously been linked to the *mapinguari*:

1) Despite eyewitness reports, most Amazonians have assumed the *mapinguari* to be purely mythical. 2) It is usually described as primate-like, leading investigators astray (even Heuvelmans in *On the Track*). 3) Nocturnal behavior keeps it unseen and unknown to scientists. 4) With its armor and claws, most Amazonians who know of it will avoid it. 5) Its habitat "makes observation difficult and discovery of remains unlikely." Further, "with the death of one of these creatures, its remains would rapidly decay in the forest's heat and humidity...even if people did find skeletal elements, the possibility that these remains would make it into the hands of a specialist who would recognize their significance would be very small."

Dr. Oren states that his objective in writing the paper was to bring the matter to the attention of other scientists working in Amazonia, in the hope that further evidence may be uncovered. "There is little doubt in my mind," he concludes, "that the *mapinguari* legend is based on human contact with forest-dwelling mylodontid ground sloths in Amazonia."

Since the publication of his paper, Dr. Oren has been undertaking several new expeditions with the aim of locating conclusive evidence of ground sloth survival, and he has provided the Society with a summary of his most recent findings.

His new expeditions have been to the basins of four major Amazon River tributaries, the Xingu, the Tapajos, the Madeira, and the Jurua, and he has collected testimony from six witnesses who claim to have actually killed *mapinguaris*. The six reports are remarkably similar in their descriptions, including: 1) long, coarse hair — either reddish or blackish; 2) claws that are similar in shape to those of tamanduas, but more the size of those from giant armadillos; 3) a mule- or horse-like snout, although shorter; 4) four large, canine-like teeth; and 5) an overpowering, unpleasant stench.

He now also has molds of what he thinks are probable ground sloth tracks, and he proposes that the roundish tracks are from the forefeet. Dr. Oren now proposes that the reported animals are probably megalonychid ground sloths — as were the species that survived in the Caribbean until just a few centuries ago — rather than the larger mylodontids. He bases this hypothesis on the *mapinguari*'s reported dentition and their reported rapid locomotion when threatened.

As is common with cryptozoological reports from native peoples, Dr. Oren has also found that every indigenous Indian group that he has interviewed has a different name for the animal, varying from proper names that are untranslatable to names that translate as "loud creature," "long-furred creature," "the creature that roars," and "the long-armed creature." One thing is common to all, however: the animal is universally feared, and local people make every effort to avoid it. Even the hunters who claim to have killed it state that, so terrifying was their experience, they never again want to come face to face with it.

Unfortunately, all of the specimens that were reportedly killed were left in the forest to decay, although in some cases some anatomical parts — paws, claws, hair — were said to have been taken to nearby villages or shown to third parties, only to be discarded later. Thus, Dr. Oren has not yet been able to produce conclusive, physical evidence.

At the end of his 1993 article, Dr.

Oren had asked: "Has the creature already gone extinct, do these first-hand stories represent the last sad chapter of our own species' encounters with the ground sloths, or is there still a small endangered population of these 'fabulous' creatures left to the studied and protected?"

A timely question. And as we approach the end of a century — and a full century since the last flurry of interest in the possible survival of these magnificent animals — it could be that the mighty Amazon, the largest tropical basin in the world, may yet provide us with more surprises than even some cryptozoologists had hoped for. □

## QUOTES

"Poets have been mysteriously silent on the subject of cheese."

G. K. Chesterton  
British writer and essayist

"It is a capital mistake to theorize before one has data. Insensibly, one begins to twist facts to suit theories, instead of theories to suit facts."

Sir Arthur Conan Doyle  
British writer, creator of Sherlock Holmes

"It is always a good rule not to put too much confidence in experimental results until they have been confirmed by theory."

Sir Arthur Eddington  
British physicist and astronomer

"Professor J.B.S. Haldane has described the normal process of acceptance of a scientific idea, in four stages:

1) this is worthless nonsense; 2) this is an interesting but perverse point of view; 3) this is true, but quite unimportant; 4) I always said so."

*Journal of Genetics* Vol. 58:464 (1963)

## EDITORIAL

## SO YOU WANT TO BE A CRYPTOZOOLOGIST...

Over the years, the Secretariat has been the recipient of many communications from young people. Generally, these may be divided into three categories. The first category has encompassed letters from elementary schoolchildren who usually want "everything available" — including photos — on their favorite "monster." These monsters usually range from Bigfoot to Dracula. Sometimes entire classrooms write individual letters, often inserted together by their teacher into a large envelope. The teacher sometimes may write a separate covering letter also requesting the materials.

Many of these letters are precious testaments of the innocence and excitement of childhood. (After many years, I still have one such letter with two quarters — a child's weekly allowance — taped to it, his contribution to a future cryptozoology expedition. Somehow, I have never been able to bring myself to untape the coins and use them.) Sadly, however, the Society does not have an education department, and does not have the resources needed to meet all these requests from schoolchildren, which sometimes number in the hundreds per year.

Obviously, the expenditure of the Society's limited budget has to be devoted first to its paying members, and there has never been anything left over for public education programs, either for children or adults.

The second category of incoming letters covers middle and high school students. Many of these students have selected some cryptozoological animal — usually Bigfoot or the Loch Ness Monster — on which to write a class report. Of course, the report is almost due, and all such information is needed immediately. These letters are sometimes followed by urgent telephone appeals from anxious parents who, not unreasonably, assume that the Society has a public duty — if not a mandate — to provide such assistance.

Other high school students or college freshmen sometimes have a more in-

tellectual interest in cryptozoology in general, having perhaps read a book on the subject in the school library. They may even seek advice concerning their planned intention to pursue cryptozoology as an academic subject. This is the third category. We actually get quite a few letters from students requesting advice on the best academic cryptozoology programs in the nation. It is sometimes even assumed that some colleges must have entire cryptozoology departments.

Although I am sometimes tempted to recommend the cryptozoology programs at Harvard or Yale, the truth is that there are, of course, no academic programs or departments devoted to cryptozoology at all. Nor, in my opinion, should there be. Existing zoology departments — or "ecology" and/or "evolution" departments, as they are now increasingly being re-named — have room for many subjects, and there is no reason why cryptozoological topics cannot occasionally be addressed in such venues.

Several departmental courses around the country have already included some cryptozoological topics, and sometimes guest speakers have been included. I could even envision a particular course on cryptozoology if the interest were there, but I see no need for an entire academic program — much less a full-fledged department — devoted to cryptozoology.

Here, then, is the basic information the Secretariat imparts — and ISC members may do likewise if they wish — to interested high school or college students concerning the pursuit of cryptozoology within academia:

1) There are no academic departments of, or academic programs in, cryptozoology at any college or university anywhere in the world.

2) Even if there were, there are no career opportunities specifically in cryptozoology anywhere.

3) Those with a serious interest in cryptozoology may pursue it within the context of some established zoological discipline, such as mammalogy or population ecology, or a social science, such as history or linguistics.

4) It is recommended that any interest in cryptozoology be maintained low key while scholarly studies are pursued, and, also, that cryptozoological issues not dominate one's objective pursuit of knowledge.

5) If an academic or professional career within zoology or some related field is ultimately pursued, it is recommended that an interest in cryptozoology not be allowed to endanger career prospects, particularly through the loss of tenure or promotion. Certainly, cryptozoology is a scientific subject, and should be pursued in a scientific manner, but that does not mean that it is perceived as a scientific endeavor by decision-makers whose knowledge of it is limited or incorrect.

I hope this brief summary answers all or most of the questions concerning cryptozoology from information-hungry students. Unfortunately, we cannot offer more than these generalized answers and recommendations.

J. Richard Greenwell  
Editor

## QUOTE

"It should be obvious that the objectivity and the rationality of progress in science is not due to the personal objectivity and rationality of the scientist. Great science and great scientists, like great poets, are often inspired by non-rational intuitions. So are great mathematicians."

Sir Karl Popper  
British philosopher



## NEW SCHEDULE, NEW DUES

As explained previously (*Newsletter*, Vol. 11, No.4), a new publishing schedule has been adopted so as to get caught up with publications. Thus, Vol. 12 of both the journal and newsletter covers the years 1993-1996. This consolidation was made necessary following the acute shortage of funds at the Society's disposal after losing financial support from two sources.

After receiving new financial support, corresponding to half of what was lost, it was hoped that we could soon return to the normal annual appearance of volumes. However, that has not yet been possible. Thus, Vol. 13 — again, of both the journal and the newsletter — will cover the period 1997-1998.

What that means in practical terms is members who joined the Society in either 1997 or 1998 will be processed for that single membership period. Likewise, 1993-1996 members who renew their memberships will also be processed for that single 1997-98 period. Hopefully, if the financial fortunes of the Society continue to improve, we will then return to the normal annual membership period and annual volume numbering system.

Despite this new publishing schedule, volume numbering of both publications will continue uninterrupted, and no members will miss any issues as a result of these consolidations. Also, no members will be shortchanged. Those who paid for one-year memberships will ultimately receive the publications they are entitled to — one journal and four newsletters. The only difference will be that these publications will cover more than a one-year time span.

Those members who have paid in advance will, of course, be credited for such. For example, if a member has already paid for both 1997 and 1998, that membership will be re-processed for two membership periods, 1997-98 and 1999. In a sense, then, individuals receive "free time" as members of the Society, but the Society itself loses membership dues income from those "lost" years, even though non-publication expenses still have to be met. But, as the old saying

goes, it takes money to make money.

Beginning with Vol. 13 (for 1997-1998), the Society's membership dues have been raised to US \$42 (or £28). This is a substantial increase over the previous \$32, but has been necessitated in order to help get the Society back in financial health. Members will already have received Vol. 12 of the journal with these new dues indicated on the renewal/return envelope.

The new dues, established by the Board of Directors, may seem high to some members, and no doubt some will not be renewing their memberships as a result. However, members should bear in mind two important things. First, the new \$42 dues are actually equivalent in purchasing power to the initial \$25 dues that were in force when the Society was founded in 1982. Reluctant to raise dues too much — and, as a result, lose members — the Board's past policy was to be conservative, and to raise dues minimally. Over the years, this resulted in the Society's membership income falling more and more behind in relation to the Consumer Price Index (CPI), the principle measure of inflation in the U.S. Although the CPI is not an accurate determination of the costs of goods and services, it does provide a reasonable overall estimate. Between 1983 and 1997, the average annual CPI percentage increase has been 3.5. Thus, \$25 in 1982 was equivalent to about \$42 in 1997.

The Board's new policy will be to ensure that future membership dues are more in line with real costs. Dues increases will not be pegged specifically to the CPI, however, and they will not be made every year.

The second thing that members should remember is that, when they pay their annual dues, they are not simply subscribing to publications — although these are, of course, the most visible benefits. Members are also supporting the functions of an organization, one devoted exclusively to the scientific and professional study of cryptozoological problems worldwide.

In this respect, our little Society — which receives no outside support of any kind from official agencies or foundations — is really quite unique. Over the years, it has published both a scholarly journal and an informative newsletter; it has operated a centralized office (the Secretariat), where it maintains archives; it has provided much information and advice to members all over the world; it has received many visitors — both members and non-members — from many countries; it has sponsored many of its own meetings and participated in, or supported, the meetings of other organizations; and, in general, it has fostered a sensible, objective, and scientific approach to cryptozoology in both academia and the media — as distinct from numerous organizations or individuals who promote cryptozoology for their own particular purposes.

Unfortunately, such a sensible, objective approach carries few financial rewards. So, in a sense, our scientific orientation has been the cause of our monetary problems, and, as a consequence, of our delayed publications. Even so, we would still rather produce a reliable, scholarly journal less often than a mediocre or shabby journal on time.

Despite these difficulties, we hope that most members — those with a serious, long-term interest in the subject — will stick with us, and will continue to support our efforts. Those who can afford it, and feel motivated, are encouraged to add donations to their annual dues. Those with additional assets at their disposal are also invited to become Benefactors. This involves a one-time payment of \$1,500 (or £1,000), up from the original \$1,000, and includes a Life membership. That is, the Benefactor will continue to be a member and receive all publications for life without having to pay anything ever again — unless, of course, he or she wants to.

This is not the end of our appeals for financial support, by any means. In fact, as Winston Churchill said, it is not even the beginning of the end. But it may well be the end of the beginning. □

## SECOND AFRICAN COELACANTH FOUND

In December of 1938, a young naturalist named Marjorie Courtenay-Latimer retrieved a strange-looking blue fish from a trawler in East London, South Africa. The fish turned out to be a coelacanth (pronounced *see-la-kanth*), a form known only from fossils and believed extinct for about 80 million years. (The complete story of what is still considered the zoological discovery of the century may be found in the Society's coelacanth 50th anniversary commemorative *Newsletter*, Vol. 8, No. 1, 1989.)



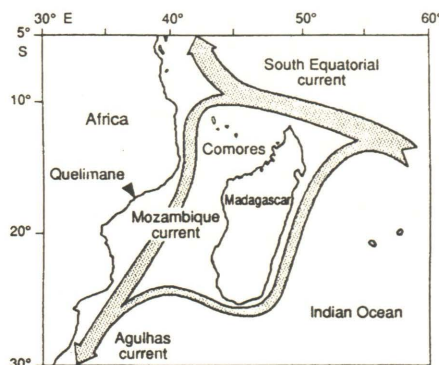
*The Mozambique coelacanth soon after capture. It is only the second specimen ever found in African coastal waters.*

Although ichthyologist J.L.B. Smith formally named the fish *Latimeria chalumnae*, after South Africa's Chalumna River — off whose mouth it was trawled — he doubted that it was really South African, believing that it must have been a stray brought southward by the Mozambique Current.

It took Smith 14 years of searching to obtain a second specimen, which was caught off the Comoro Islands northwest of Madagascar. Since then, all the subsequent specimens, now about 200, have come from the Comoros, so it seems that Smith had been right, and that the East London specimen, although still the zoological type specimen, had merely been a stray. Over the years, there have been numerous reports of, speculation about, and even investigations into, possible coelacanths — maybe even of other related species — existing in African coastal waters, or even in the waters of other regions of the world. However, the Comoros population is still the only one

known to exist.

More fuel was added to the fire of speculation when, on August 11, 1991 — 52 years after the East London specimen was described by Smith — a coelacanth was caught once again in mainland African waters, this time off the coast of Mozambique. This specimen was retrieved from a trawl by the *Vega 13* at a depth of 130-145 feet (40-44m) over a sandy bottom — not typical of the Comoros population, which inhabits rocky crevices and caves at depths of about 650 feet (200m) — some 15 miles (24km) offshore of Pebane, central Mozambique. This spot is about 740 miles (1,190km) from the site of the Comoros population.



*The Mozambique Current, which may be responsible for transporting individual coelacanths from the Comoros Island to African coastal waters.*

Recognizing the fish as a coelacanth, the trawler's captain saved the specimen — which was still alive — and it remained in the ship's freezer until December 18, when it was transferred to the freezer of the Ministry of Fisheries in Maputo. The next day, custody of the specimen was assumed by Mozambique's National Museum of Natural History, also in Maputo. Because the Museum lacked sufficient freezing or preservation capabilities, the fish was skinned and mounted for display in the Museum, with the internal organs, musculature, and notochord being unfortunately discarded in the process.

The specimen, a large female measuring 5 feet, 10.5 inches (1.79m), and weigh-

ing 216 lbs. (98kg), is the heaviest specimen ever. It was found to contain 26 juveniles in an advanced stage of development; this was over five times the number ever found before in a gravid coelacanth, and they were fortunately saved for later studies. (Little is known of the reproductive biology — or, indeed, the natural history — of coelacanths, one reason being that nobody has ever been able to keep a captured specimen alive for more than a few hours.)

The following month, the Museum's director, A.J.P. Cabral, was visited by Mike Bruton, the director of the J.L.B. Smith Institute of Ichthyology, in Grahamstown, South Africa (the main center for coelacanth studies), and Hans Fricke, a German ichthyologist (who some years ago obtained the first underwater films of living coelacanths from his submersible). It was agreed, for safety reasons, that 10 of the juvenile specimens would be curated at Dr. Fricke's institution, the Max Planck Institute for Behavioral Physiology, in Seewiesen, Germany, and 10 would be curated at the Smith Institute in South Africa. The remaining six remain preserved in formalin at the Museum in Maputo.

The three scientists later co-authored a paper in the *South African Journal of Science* (First Capture of a Coelacanth, *Latimeria chalumnae* [Pisces, Latimeriidae], off Mozambique, Vol. 88 [4]: 225-27, 1992), in which they stated that the new specimen, like the first one in 1938, may have been an individual stray carried southward by the Mozambique Current. "Further efforts now need to be made," the authors stated, "indirectly by monitoring native fisheries and directly using manned or unmanned submersibles, to establish whether further coelacanths occur off the African coast."

Five months later, Dr. Fricke, together with his colleagues U. Schillewen, M. Scharlt, J.T. Epplen, and S. Paabo, published a letter in the Scientific Correspondence section of the British journal *Nature* (Which Home for Coela-



canth?, Vol. 363: 405, 1993). In it, they describe the molecular genetic work undertaken to compare the affinities of the new Mozambique specimen with several Comoros specimens.

The results of various kinds of analyses, including the comparison of mitochondrial DNA sequences, led the authors to conclude that the Mozambique specimen indeed belongs to the Comoros population, thus supporting the hypothesis that it was a stray individual. They added: "An alternative explanation would be that there is an African coastal population in continuous genetic contact with the Comoros. But this seems very unlikely."

Another possibility — not mentioned by the authors — is that an African population or populations may indeed exist in a few restricted areas, but

that the new Mozambique specimen did not belong to it/them, being merely a Comoros stray.

Concern over the coelacanth's future continues, meanwhile. Based on his submersible studies, Fricke believes that the Comoros population only numbers between 150 and 200 individuals — no more than the total number of specimens known to have ever been collected. In a previous letter in *Nature* (Natural Habitat of Coelacanths, Vol. 346: 323-24, 1990) Fricke and Karen Hissmann, also of the Max Planck Institute, stated that official records indicate that only 2.6 percent of the population is taken annually by human fishing. Furthermore, coelacanths are generally caught only as a bycatch by native fishermen from small outrigger canoes at night, a form of fishing which has not increased despite an increase in fisheries generally.

Drs. Fricke and Hissmann expressed optimism that "the low population size could have existed for centuries," and does not necessarily represent a recent downturn. Nevertheless, they warn that monitoring of the population is essential, and that "threats to their survival might arise from commercial interests such as public aquariums." There have, in fact, been reports of Comoros fishermen targeting coelacanths, knowing that private collectors and museums may pay handsome sums for a specimen. Fortunately, in 1989, trade in coelacanths was banned by Republic of Comoros law, and the species was also upgraded to Schedule 1 of CITES.

Hopefully, humans will not end the long and distinguished career of this, the oldest existing vertebrate form known, one whose origins date to about 380 million years ago — long before the dinosaurs were even thought of. □

## SIXTEENTH CENTURY RUSSIAN CROCODILE ACCOUNT

Two Russian scholars, Boris V. Sapunov, of the Hermitage State Museum in St. Petersburg (formerly Leningrad), and Valentin B. Sapunov, of the Department of Control of Medical and Biological Systems at St. Petersburg (formerly Leningrad) State University, have published an article on what appears to be the presence of crocodilians in Russia in the 16th century. Their article, "Crocodiles in Ancient Pskov," which they deposited in the Society's archives, appeared in the Russian journal *Chemistry and Life*, No. 3, 1989.

Their information is based on an old Russian chronicle describing the incident involving the supposed crocodilians at the city of Pskov, on the Velikaya River, about 400 miles (645km) northwest of Moscow, and about 150 miles (240km) southwest of St. Petersburg. Translated into English, the main part of the manuscript's narrative reads: "In 1582, some terrible animals, that is crocodiles, came from the river. The animals began to attack the populace. Many people were bitten by the crocodiles. Everybody was frightened, and began to pray to God. Soon afterwards, some of the crocodiles

were killed, and some of the other animals escaped."

Of interest here is the zoogeographical question of whether the reported reptiles were from a natural breeding population or from a temporary population introduced by humans. Modern crocodilians — which include the crocodiles (at least 13 species), the alligators (at least 7 species), and gavials or gharyals (probably two species) — are thought to be physiologically restricted to tropical and sub-tropical regions. Although the ranges of two species, the American alligator, *Alligator mississippiensis* and the Chinese alligator, *Alligator sinensis*, penetrate temperate zones where freezing temperatures sometimes occur, crocodilians almost certainly would not survive in a natural state in the far colder boreal regions of northern Russia.

The northernmost historical presence of crocodilians in the Old World is at about 32 degrees north latitude, where Egypt's Nile River enters the Mediterranean Sea. This is the habitat of the much-feared Nile crocodile, *Crocodylus niloticus*, a man-eating species found

throughout most of Africa. The gharyal, *Gaviales Gangeticus*, which reportedly may also reach the Nile crocodile's length of 20 feet (6m) or more, and the mugger crocodile, *Crocodylus palustris*, which reaches at least 13 feet (4m) in length, occur at similar northerly latitudes in Southwest Asia.

After presenting the centuries-old report, Sapunov and Sapunov discuss whether the chronicle gives a true account, and whether crocodilians were, in fact, responsible for the account.

After reviewing various arguments concerning the nature of old Russian chronicles, the authors conclude that the account was in fact relaying authentic historical information. They point out that the Russian word for *crocodile* was clear to educated 16th century Russians, having been introduced from the Greek. In the 11th century, the writings of an Egyptian monk were translated into Russian, and these contained the first description of a crocodile in Russian. Numerous other works containing discussions of crocodiles were translated into Rus-



sian over the next centuries, and Sapunov and Sapunov have no doubt concerning the correct identification of the Pskov animals.

As to the second question, the authors address anatomical and physiological aspects of crocodilians, concluding that such reptiles could not possibly survive the severity of Russian winters. As no other reports of crocodilians exist from either before or after the event at Pskov, they conclude that the animals were briefly introduced into the wild by animal traders.

One of the closest accessible regions which harbored crocodilians was Egypt, and Russia in fact had contacts with that country in the 16th century. It is known that, in 1559, a Russian cultural delegation headed by a trader named Vasily Pozdnyakoz visited Cairo, and in 1582 the Russian counselor Trifon Korobeinikov traveled in Egypt, subsequently publishing a well-known book on his voyage. Other Russians also visited Egypt, and all later wrote details about the striking appearance of the giant reptiles known as crocodiles.

Continuing with their analysis, the authors point out that Pskov lay on an important trade route between the Middle East and northern Europe, and many Arab traders crossed that route. They then propose that a caravan of Arab merchants may have taken such crocodiles from Egypt to Russia as a gift to a wealthy personage, or, alternatively, to use in carnival exhibits. The exhibition of exotic animals was indeed quite common in Russia in that century.

In support of this hypothesis, the authors relate that, in the first half of the 16th century, Sigismund Gerberstein, an Austrian diplomat, published a book titled *Notes on Moscow Land* (re-published in 1908). In it, he wrote about giant reptiles that were being bred in captivity in Lithuania. The information provided indicates that the reptiles were either crocodilians or monitor lizards, and, furthermore, that the best route from the south to Lithuania passed through Pskov.

Sapunov and Sapunov do not think

that the transportation of such crocodiles was necessarily a difficult task, as such reptiles can be kept for some time without food or water. They also propose that, on river routes, an old Russian system for transporting live fish may have been used; this involved special fish barges with continuous water flow in order to keep the fish trapped but alive.

After reviewing all the historical evidence, the authors conclude that, in 1582, a number of Egyptian crocodiles — presumably Nile crocodiles — were being transported live through the Pskov region when something caused their accidental release. The reptiles were then able to survive for some time in the Velikaya River, subsisting on fish, and, it seems, humans. The ones which were not killed must have died during the subsequent winter, as no mention is made of them again in any Russian chronicle.

Sapunov and Sapunov admit that they are not able to prove their hypothesis, but they are fairly confident of it, pointing out that human introduction is consistent with both our understanding of reptile physiology and Russian history.

The authors do not address the possibility of a purposeful release (perhaps after the captives had served their purpose), or that the crocodilians may have, instead, originated in Southwest Asia, having been transported to Russia from India or Pakistan, or even southern Iran. The Editor has no knowledge of 16th century contacts between Russia and those countries, but comments from any readers knowledgeable on this matter would be welcome. □

## CRYPTOLETTERS

*The Editor welcomes letters from readers on any topic related to cryptozoology, but reserves the right to shorten them or make slight changes to improve clarity or style, but not meaning.*

To the Editor:

As a relatively new member of the

Society, I would like to exercise my privilege and write my first letter to the newsletter. I have always been interested in reports of unknown animals, and intrigued by efforts to investigate them. I ordered and received all the previous issues of the newsletter and journal going back to 1982, and I just wanted to let you know that I think they are extraordinary and well worth reading.

I am sure the Society will maintain the high scientific standard of its publications in the future, and I look forward to continued membership for many years to come.

Rafael Augusto Lara Palmeros  
Center for Allergy and Respiratory  
Diseases  
Veracruz, Mexico

*New members don't know what they're missing by not buying complete sets of back ISC publications — if all new members did so, the Society would have no financial problems at all. Incidentally, we now offer up to 30 percent discounts. Interested members should contact the Secretariat for free back order forms which list all published articles. Alternatively, they may copy similar forms found at the back of the journal. Editor.*

To the Editor:

In perusing back issues of the newsletter I came across a letter from Michael Playfair, in England, (*Newsletter*, Vol 7, No. 1) detailing his unsuccessful efforts to locate a copy of the 1934 film *The Secret of the Loch*, as that production contains some of the lost 1933 Malcolm Irving footage of the Loch Ness Monster. I can report that *The Secret of the Loch* is now available on videocassette from Sinner Cinema, P.O. Box 777, Dept. F, Pacifica, California 94044, U.S.A. I hope this helps.

David Arnsperger  
Tucson, Arizona, U.S.A.



## VLADIMIR MARKOTIC, 1920-1994

*The Society regrets to announce the death of charter member Vladimir Markotic, an archaeologist at The University of Calgary, in Alberta, Canada. The following obituary was written by his close friend and associate Tom Steenburg.*

Many of us have been very saddened by the death of Vladimir Markotic in November, 1994. The cause of death was heart failure. He passed away with his wife and children at his bedside.

Vladimir Markotic is best remembered in Sasquatch circles for the book he edited with Grover Krantz titled *The Sasquatch and Other Unknown Hominoids* (Western Publishers, 1984). He also co-organized the Society's symposium "Sasquatch Evidence: Scientific and Social Implications," held at Washington State University, in Pullman, Washington, on June 24-25, 1989 (see *Newsletter*, Vol. 8, No. 4, 1989).

Originally from Croatia, Vladimir received an M.A. at Indiana University in 1955, and a Ph.D. from Harvard University in 1963, both in anthropology. He served as an area editor for Russia for the Council of Old World Archaeology, was a member of the editorial board of the journal *Canadian Ethnic Studies*, and was the editor of *Calgary Archaeologist*. He was also editor of the volume *Ancient Europe and the Mediterranean* (1977).

Vladimir had a real zest for life, and possessed a mischievous sense of humor. I remember once when driving along a forested road, he suddenly yelled: "twisted tree!" — no doubt thinking of the reports that Sasquatches twist small trees to mark their territories (an idea I

have never accepted, by the way). I hit the brakes, bringing the truck to a screeching halt. Vladimir pointed to a tall pine tree which was broken in half about 40 feet (12m) up. "Vladimir," I said, "if that tree was broken by an animal it would have to have been done by Godzilla!"

Despite his age, I was always impressed by Vladimir's fitness in the mountains, and he would have no trouble keeping up with me on the trail. His personal energy and tireless debating with me, particularly on our trip to the Pullman ISC symposium, are memories I shall always cherish.



*Vladimir Markotic*

We also spent many a night at his cabin on Crimson Lake debating numerous topics related to the Sasquatch, particularly on the "to shoot or not to shoot" question. Vladimir was always against shooting a Sasquatch in order to prove its existence. "Tom," he would say, "why shoot one? If you do, the scientists who had said there were no such things will

just turn around and say that they knew it was there all along." No doubt there is wisdom in Vladimir's words here. However, he did not get me to change my mind, nor was I able to change his. But we both enjoyed trying. He also said: "If the Sasquatch exists, it's a major discovery. If it doesn't exist, we need to look into it anyway because it is important folklore."

His interest in Sasquatch went back many years, and he was an early collaborator of Bernard Heuvelmans and Ivan T. Sanderson. When the Minnesota Iceman was on display during the 1968 Calgary Stampede, and based on what Sanderson had told him, he went to see it. He thought that it was nothing like Sanderson's description, but was obviously a rubber dummy on ice. Vladimir and I talked for many hours about the Iceman. He always considered the whole story as nothing but a hoax.

The possible systematic position of the Sasquatch was also something we talked about at length. He believed that it was closely related to humans, something which he held till the end. This, in turn, explains why he was against shooting one of them in order to prove its existence. He certainly had protective feelings towards the Sasquatch, and, unlike many of his academic colleagues, he accepted its existence without a doubt.

Vladimir Markotic was a first rate researcher. He was also a good friend. He was a loving father to his children, and a devoted husband to his wife. We all miss him dearly.

Thomas Steenburg  
Calgary, Alberta, Canada

*The ISC Newsletter* is not issued for permanent scientific record, and thus, for the purposes of zoological nomenclature, does not fulfill the criteria for publication as defined in the International Code of Zoological Nomenclature.

**Archival Material:** Members are encouraged to send copies of cryptozoology-related newspaper reports, popular magazine articles, and scientific papers to the ISC Secretariat. Recently published material is particularly welcome, but old and obscure items are also of interest and potential importance. It is better for the Secretariat to have several copies of an article rather than none at all, so when in doubt, please send. All submissions should clearly indicate a full reference; e.g., name of publication, date, and — with scientific papers — volume and page numbers. In most cases, because of the amount of mail received, members will not be sent an acknowledgment of receipt, but all items submitted are carefully read, are often used in the *Newsletter*, and are preserved for posterity in the Society's archives.



**Society Purpose and Policy:** The International Society of Cryptozoology was founded in 1982 in Washington, D.C., and is incorporated and operates under the laws of the District of Columbia. It is also recognized by the U.S. Internal Revenue Service as a tax-exempt, non-profit scientific organization. Its Secretariat is located in Tucson, Arizona. The Society serves as a focal point for the investigation, analysis, publication, and discussion of all matters related to animals of unexpected form or size, or unexpected occurrence in time or space. The Society also serves as a forum for public discussion and education, and for providing reliable information to appropriate authorities. The Society takes no position on which of these supposed animals may actually exist. Opinions may be expressed by individual members, but they are personal ones, and do not reflect any official or unofficial Society policy. Likewise, the Society takes no position concerning the authenticity of any given cryptozoological evidence or events.

**Memberships and Subscriptions:** Membership and subscription inquiries should be addressed to the ISC Secretariat. Membership is US\$42 or £28 a year. Payment may be made by personal check if drawn against a U.S. or U.K. bank. Persons donating any additional amounts become Sustaining Members. Membership includes the receipt of *The ISC Newsletter* quarterly and the journal *Cryptozoology* annually. Couples may take out a joint membership for US\$47 or £31 (only one set of publications is sent). Institutions such as corporations, zoological parks and aquariums, and libraries may obtain institutional subscriptions to the Society's publications for US\$65 a year. There are no additional fees for memberships or institutional subscriptions outside of the U.S.A. Although payment by non-U.S./U.K. members is preferred in US\$ or £Sterling (by bank draft drawn against a U.S. or U.K. bank, or by international postal money order), individuals in Australia, Austria, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, and Switzerland may pay by personal check in their own currencies provided the equivalent of US\$42 (using the exchange rate current at the time) is sent. The above payment methods apply also to membership renewals or back publications purchases. All payments should be sent to the ISC Secretariat.

**Back Issues:** All back issues of both *The ISC Newsletter* and the journal *Cryptozoology* are available to individuals for US\$5.00 or £3.50 and US\$22 or £14 respectively (institutions should contact the ISC Secretariat for institutional rates). These prices include postage costs. Orders between \$43 and \$100 (or £29-67) receive a 10% discount; orders between US\$101 and \$200 (£68-133) receive a 20% discount; and orders of \$201 (£134) or more receive a 30% discount. Free order forms listing all back publications may be requested from the ISC Secretariat. All orders must be prepaid, and the above payment methods apply.

**Field Medical Advisor:** Michael J. Manyak, M.D., Department of Urology, George Washington University Medical Center, 2150 Pennsylvania Avenue, N.W., Washington, D.C. 20037, U.S.A. Tel: 202/994-4003; Fax: 202/994-3671; E-mail: uromjm@gwumc.edu. Members planning field-work, particularly in tropical areas, may contact Dr. Manyak for complimentary medical/health care advice.

**Honorary Members:** Marjorie Courtenay-Latimer (South Africa); Athol M. Douglas (Australia); Robert L. Downing (U.S.A.); Richard S.R. Fitter (U.K.); John Green (Canada); The Lord Hunt of Llanfair Waterdine (U.K.); Marie-Jean Koffmann (Russia); Theodore Monod (France); Robert H. Rines (U.S.A.); Bob Titmus (Canada).

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## The ISC Newsletter

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